

WHAT IS CLAIMED IS:

1. An alkali metal-containing niobate-based piezoelectric material composition comprising:
a solid solution represented by a composition formula (ANbO_3) (A: alkali metal); and
at least one additive selected from Cu, Li and Ta.
2. The alkali metal-containing niobate-based piezoelectric material composition according to claim 1, wherein said solid solution is represented by a composition formula $(\text{K}_{1-x}\text{Na}_x\text{NbO}_3)$ (wherein $x = 0$ to 0.8).
3. The alkali metal-containing niobate-based piezoelectric material composition according to claim 1, wherein said solid solution is represented by a composition formula $\text{Li}_x(\text{K}_{1-y}\text{Na}_y)_{1-x}(\text{Nb}_{1-z}\text{Ta}_z)\text{O}_3$ (wherein $x = 0.001$ to 0.2 , $y = 0$ to 0.8 , $z = 0$ to 0.4).
4. The alkali metal-containing niobate-based piezoelectric composition according to claim 2, wherein said at least one additive is Cu having an amount of 0.001 to 5 mol%.
5. The alkali metal-containing niobate-based piezoelectric composition according to claim 3, wherein said at least one additive is Cu, Li and Ta, each of them having an amount of not more than 5 mol %.

6. The alkali metal-containing niobate-based piezoelectric material composition according to claim 3, wherein said at least one additive is Cu, Li and Ta, the Cu being in an amount of 0.001 to 5 mol %.

7. A method for producing an alkali metal-containing niobate-based piezoelectric material composition, comprising:

adding an additive powder containing at least one element selected from Cu, Li and Ta to a mixture powder represented by a composition formula $ANbO_3$ (A: alkali metal), then blending these powders together;

molding said mixture powders and sintering the same; and,

giving piezoelectricity to the resulting sintered-substance in a process of a treatment.

8. The method according to claim 7, wherein said sintering process is an atmospheric pressure sintering method or a mechanically pressed sintering method.

9. The method according to claim 8, wherein said sintering process is carried out with a heating method selected from a group consisting of electric furnace heating, microwave heating, high frequency induction heating, infrared heating.

10. The method according to claim 7, wherein said additive powder is 0.001 to 5 mol% of Cu, and said mixture powder is $K_{1-x}Na_xNbO_3$ ($x = 0$ to 0.8).

11. The method according to claim 7, wherein said mixture powder is $Li_x(K_{1-y}Na_y)_{1-x}(Nb_{1-z}Ta_z)O_3$ (wherein $x = 0.001$ to 0.2 , $y = 0$ to 0.8 , $z = 0$ to 0.4).

12. The method according to claim 11, wherein said additive powder is 0.001 to 5 mol% of Cu.

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